

INSTALLATION AND USER MANUAL



code: 80991 - 10-2012 -ENG

ATTENTION!

This manual must always be available to operators of the devices described here.

Always make sure that you have the latest version of the manual, which is available for free download from the GEFran website (www.gefran.com).

Installers and/or maintenance personnel are required to read this manual and to precisely follow the instructions contained in it and in its attachments.

GEFRAN will not be liable for any damage to persons and/or property, or to the product itself, caused by failure to follow the instructions and observe the warnings given below.



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PREFACE

Warnings and safety

While all the information contained in this manual has been carefully checked, Gefran S.p.A. accepts no responsibility for the possible presence of errors or for damage to persons and/or property caused by the improper use of the manual. Gefran S.p.A. also reserves the right to make changes to the contents and form of this manual and to the characteristics of the devices illustrated at any time and without prior warning.

The installation of the devices illustrated in the manual must be carried out by qualified technicians in compliance with the laws and standards in force and in agreement with the instructions contained in the manual.

If the GF_VEDO SL is used in applications with the risk of

damages to persons, machinery or materials, its use in conjunction with alarms is essential.

It is advisable to envisage the possibility of checking the intervention of the alarms during regular operation.

Before interacting with the Controller and built-in Operator Panel, the operator must receive full training in the procedures of operation, emergency, diagnosis and maintenance of the system.

Printing conventions used in the manual

Pay attention to the use of the following symbols.



Highlights particularly important information which influences the correct operation of the product or of safety or an instruction which must absolutely be followed.



Highlights a risk condition for the safety of the installer or the user, due to the presence of dangerous levels of voltage.

Glossary

CAN	Controller Area Network, also known as CAN-bus, is a standardised bus that enables the devices to communicate with each other.	RS-232	Standard which defines a low-speed serial transmission interface for the exchange of data between digital devices, such as modems.
CANopen	CAN communication protocol. Protocol specification for devices used in automation systems.	RS-485	Standard, at physical level, for serial connection with 2 wires.
Work cycle	Fraction of time that represents the active state of a device, circuit, etc. in relation to the total time considered.	SD Card	Card for memorising large amounts of digital data.
Data logger	Enables the storage of information for filing records or further processing.	SDRAM	Synchronised access RAM.
Duration of settlement	Time required for the output value to reach and remain above 90 % of the final value.	Strain gauge	See <i>Electric resistance extensometer</i> .
Encoder	Rotative position transducer.	USB	Universal Serial Bus, serial communication and feeding standard created to connect peripherals to computers.
Electric resistance extensometer	Sensor that transforms small dimensional deformations of a body subject to mechanical or thermal stress in changes of electric.		
Ethernet	Standard for local networks (LAN).		
FLASH	Non-volatile memory in the solid state.		
FRAM	Non-volatile RAM faster than the Flash memory.		
FTP	File Transfer Protocol. Allows the upload and download of data files between the controller and other digital devices.		
LSB	Least Significant Bit. It defines the minimum resolution of a measurement.		
LSS	Layer Setting Services.		
Modbus	Open serial communication protocol, de facto standard in communication between industrial electronic devices. Modbus RTU is the most common implementation of this standard, Modbus TCP/IP is that specific m for Ethernet networks.		
Opto isolated	Circuit configuration which, through an electronic component called an opto-isolator, allows the transferral of a signal between two circuits while maintaining galvanic separation.		
PID	Regulation algorithm.		
PLC	Programmable Logic Controller. A digital computer specialised in the management of industrial processes.		
PWM	Pulse-Width Modulation. Technique for controlling power towards electric devices.		
RAM	Random Access Memory Electronic memorising device which enables the reading and writing of data.		

Overview of the solution and functionalities

GF_VEDO SL is the complete process and automation control solution, which allows sequence control, process management, programming and display of data and connectivity with a single modular system.

To this end, a combination of “technological functions”, such as the management of PWM, fast counters, data filing by data logger, temperature PID, data export via FTP, enabling the rapid creation of applications, is made available.

Controller and Operator Panel integrated into a single device, complete with PLC embedded run time, available with a 3.5” or 7” wide display (the latter in either a horizontal or vertical version).

Thanks to its flexibility and ease of use can be used in a variety of sectors and for numerous process and automation process controls, such as:

- the wood industry (gluing, etc.);
- packaging (packing, labelling, etc.);
- food industry (pasteurisers, etc.);
- chemical industry (autoclaves, etc.);
- metal working (washing, etc.);
- plastic working (dryers, coolers, etc.).

Architecture

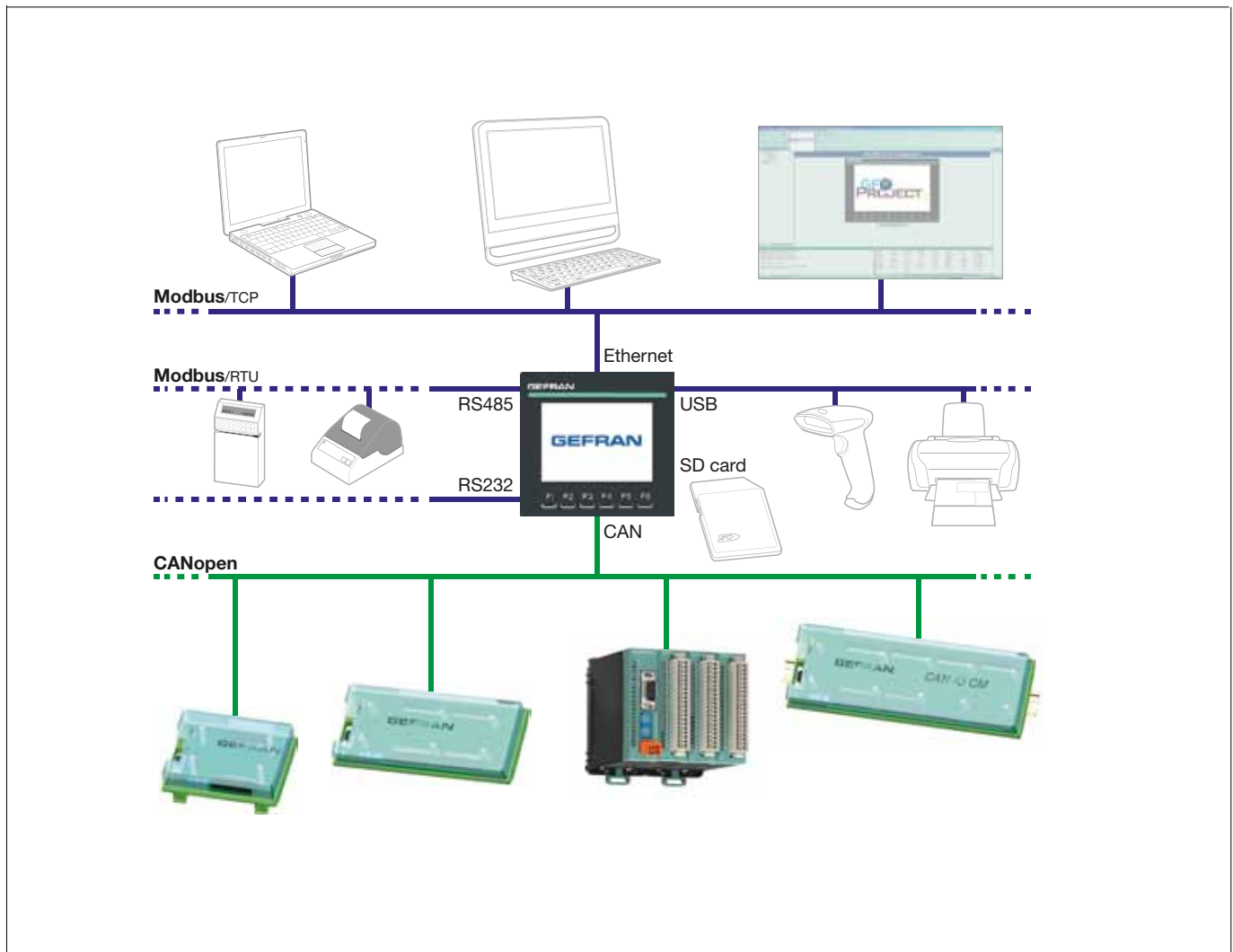
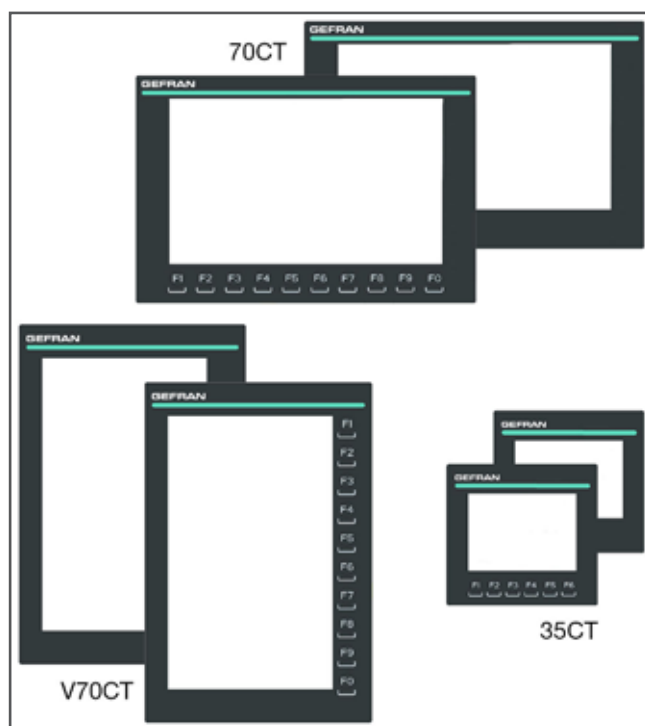


Figure 1 - System architecture

GF_VEDO series SL models 35CT – 70CT – V70CT



The integrated Controller and Operator Panel allows the complete management of automation.

Available in 3 versions (6 models), and equipped with a powerful 400 MHz processor.

It is destined mainly to operate in an industrial environment on the control panels of production process machines or processes.

The operator interacts through a colour touch screen.

Depending on the model, the size of the screen is 3.5" or 7" wide.

As an option, the device can be equipped with programmable function buttons.

Thanks to its numerous communication ports (some of which are optional), it is possible to connect a wide range of devices to the controller, such as computers, barcode readers, USB sticks, modems, printers, etc., and connect it to an Ethernet network.

The remote input and output modules (CAN-IO) are connected by bus to the CAN port (CANopen).

Other CANopen standard compliant devices can also be connected to the bus.

Technical data

		35CT	70CT – V70CT
POWER	Operating voltage	24 Vdc $\pm 25\%$	
	Absorbed current (at 24 Vdc)	300 mA max	350 mA max
	Dissipated power	7,5 W max	8,5 W max
	Protections	Protection for polarity inversion Short circuit	
	Connection	3-pole polarised extractable connector Screw terminals, max wire section 2,5 mm ²	
BACK-UP BATTERY	Type	Rechargeable Li-Al 3 V 65 mA/h, type ML2032, non-replaceable	
	Duration	10 years in absence of power: 20 months	
CONNECTIONS	CAN port	Opto-isolated Connector: DB9 M Speed: 10 kbit/s ... 1 Mbit/s Termination: to be managed externally	
	Ethernet port (ETH)	Connector: RJ45 Speed: 10 / 100 Mbit/s Signals: green connection LED, yellow data LED	
	RS-485 port (optional)	Opto-isolated Connector: DB9 M Speed: 9,6 kbit/s ... 115 kbit/s	
	RS-232 port (optional)	Connector: DB9 M Speed: 9,6 kbit/s ... 115 kbit/s	
	USB port (optional)	Connector: type A Standard: USB 2.0	

		35CT	70CT – V70CT
COMMUNICATION PROTOCOLS	Ethernet	FTP (File Transfer Protocol) Modbus TCP/IP Master/Slave	
	CAN	CANopen Master	
	Modbus	Modbus RTU Master/Slave	
DISPLAY	Type	TFT touch screen with 4-wires resistive technology	
	Dimensions (diagonal)	3,5"	7"
	Resolution in pixels	320 x 240 (QVGA)	70CT: 800 x 480 (WVGA) V70CT: 480 x 800
	Display area (L x H)	70 x 52,5 mm	70CT: 152,4 x 91,4 mm V70CT: 91,4 x 152,4 mm
	Colours	262.000	
	Brightness	400 cd/m ²	240 cd/m ²
	Contrast	400:1	1000:1
	Backlighting	White LEDs, duration 50.000 hours @ 25 °C	
	Visual angle	Horizontal: 60° Vertical: 45°-60°	70CT and V70CT: 85° in all directions
CONFIGURATION ELEMENTS	Procedure software access	16-position dial	
CONTROL ELEMENTS	Keypad (optional)	6 programmable function buttons	10 programmable function buttons
MICROPROCESSOR	Type	ARM9	
	Frequency	400MHz	
MEMORY	Sistem	64 MB, tipo SDRAM <ul style="list-style-type: none"> 12 MB HMI application 2,5 MB PLC applicative 	
	Retentive	<ul style="list-style-type: none"> 32 kB retentive variables (FLASH / FRAM *) 1 MB data logger (FLASH) 	
	Mass	128 MB, tipo FLASH <ul style="list-style-type: none"> 32 MB for user 	
	Mass extension	Slot SD Card (optional) *	
ENVIRONMENTAL CONDITIONS	Operating temperature	0 ... +50 °C (according to IEC 68-2-14)	
	Storage temperature	-20 ... +70 °C (according to IEC 68-2-14)	
	Relative humidity	max 95% RH non condensing (according to IEC 68-2-3)	
ASSEMBLY		Embedded, in control panels	
DEGREE OF PROTECTION		IP 65 on the front (according to IEC 68-2-3)	
WEIGHT		0,25 kg	0,5 kg
CE STANDARDS	EMC conformity (electromagnetic compatibility)	Observance of Directive 2004/108/CE EMC Emission: EN 61000-6-4 EMC Immunity EMC: EN 61131-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11	
	LV conformity (low voltage)	Observance of 2006/95/CE Safety LVD: EN 61010-1	

* Available from January 2013

Dimensions and spaces required for installation

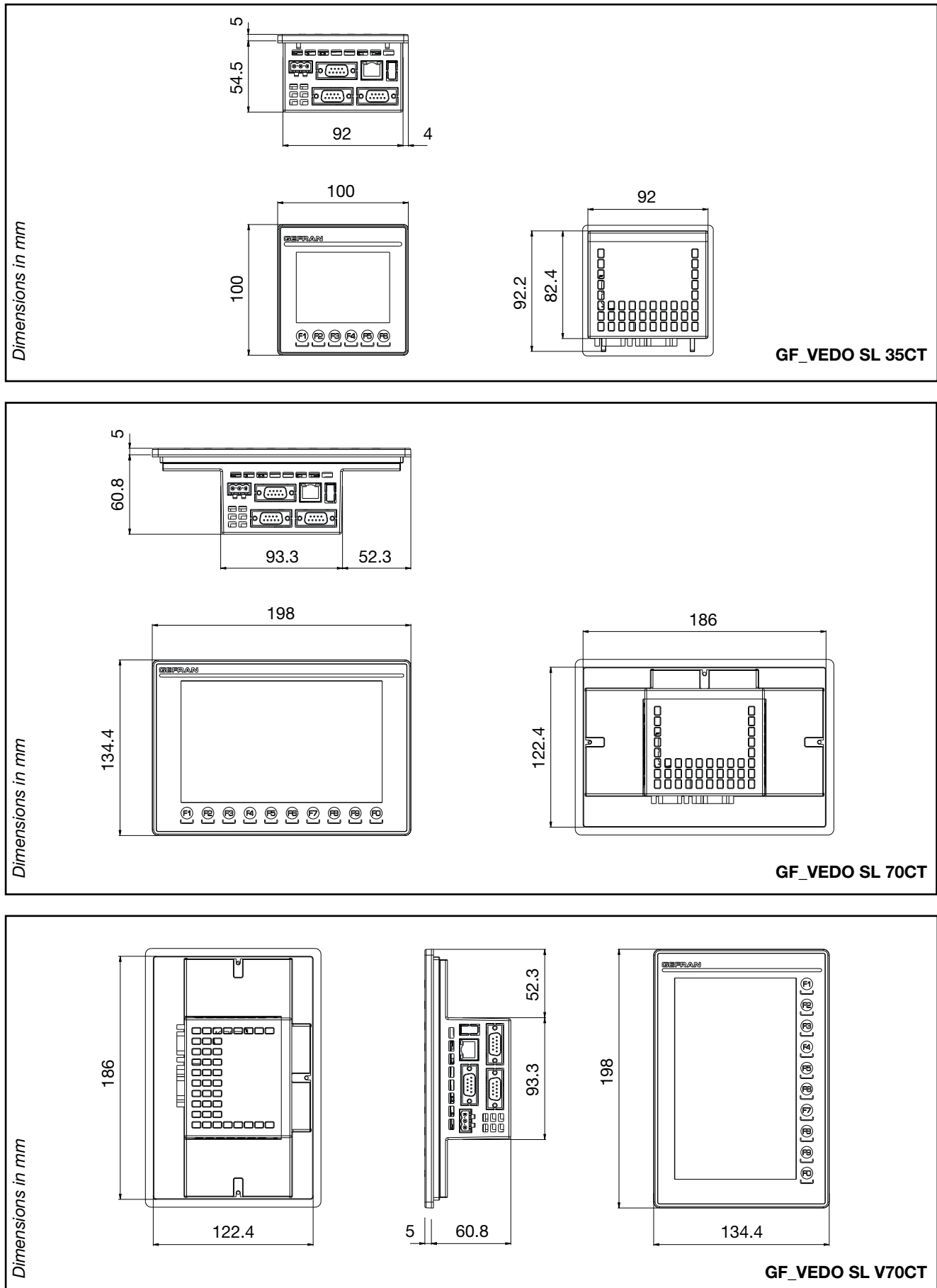


Figure 2 - Dimensions GF_VEDO SL

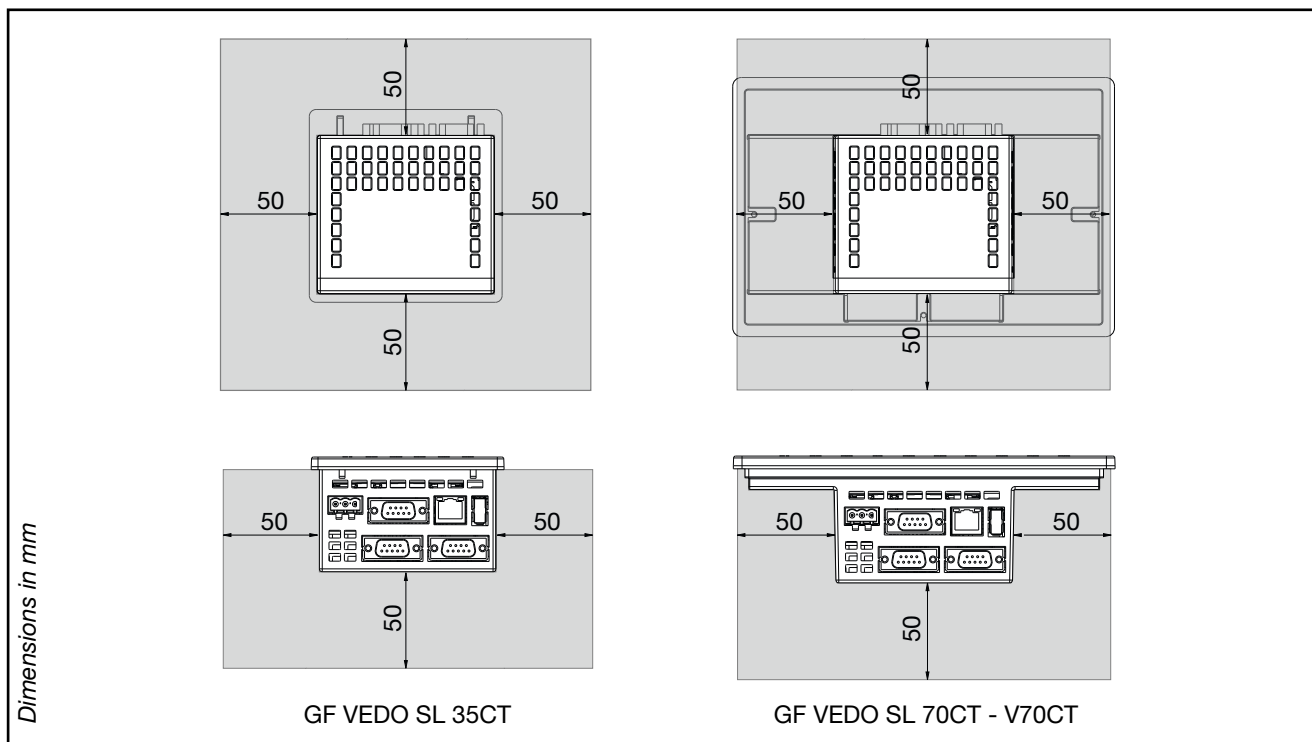


Figure 3 - Free spaces for ventilation



Attention: the temperature inside the compartment that houses the integrated Controller and Operator Panel must never exceed 50 °C.

The free spaces highlighted in grey are those recommended with static ventilation.
With forced ventilation these spaces can be reduced even further.

ASSEMBLY AND INSTALLATION

Assembly of Integrated Controller and Operator Panel

Hole dimensions

For correct installation, observe the dimensions of the templates shown in the illustration.

The dotted line shows the maximum size of the front panel.

Attention: the panel on which the Integrated Controller and Operator Panel is mounted has to have the following characteristics:

- be sufficiently stiff and strong so that it does not bend during use;
- be between 1 and 12 mm thick, to allow the fastening of the device with the terminals supplied;
- if the use of the USB transfer cable is envisaged, read the notes on its installation first.

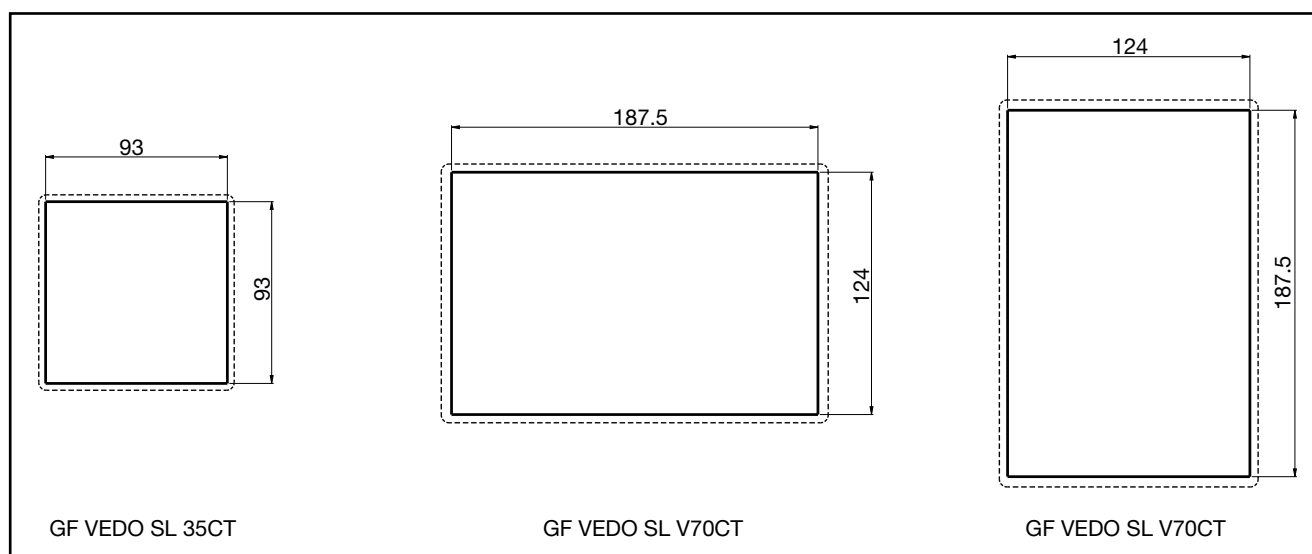


Figure 4 - Panel hole dimensions for GF_VEDO SL

Protection against infiltrations of water

The Integrated Controller and Operator Panel offers, first of all, a degree of protection of IP65. It is therefore possible to install the device in particularly dusty environments or areas subject to splashes of water without problems:

- the compartment in which the device is housed also has to be dust and waterproof;
- the panel on which the device is installed must be perfectly smooth and flat on the front;
- the hole in the panel must scrupulously respect the dimensions indicated;
- the device has to be fastened tightly to the panel, to allow the gasket fitted at the back to ensure water tightness.

Vibrations

The Integrated Controller and Operator Panel can support vibrations up to 150 Hz:

- from 5 to 9 Hz: sinusoidal 3.5 mm constant;
- from 9 to 150 Hz: sinusoidal with acceleration equal to 1 G.

Should the device be mounted on a support that exceeds these limits it is necessary to envisage a system for the suspension and mitigation of the vibrations.

Minimum spaces for ventilation

The temperature of the compartment that houses the Integrated Controller and Operator Panel must not exceed 50 °C. Figure 3 – Free spaces for ventilation shows the minimum free distances recommended in the installation of the device in a closed compartment.

Positioning

The Integrated Controller and Operator Panel has to be positioned in order to guarantee the following conditions:

- the screen must not be directly lit by the sun or particularly bright light sources.
- If necessary, screen direct rays, using an antiglare shutter for example;
- there must be no sudden temperature changes;
- there must be a low explosion risk: it can be connected to elements that operate in environments with a hazardous atmosphere (flammable or explosive) only through appropriate and suitable types of interface, compliant to the safety standards in force;
- low presence of magnetic fields

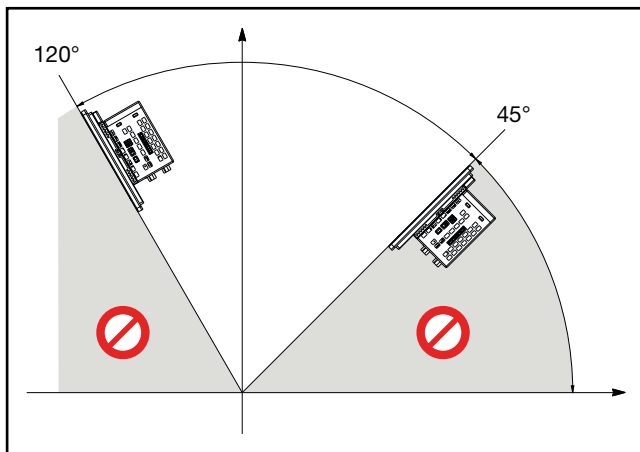


Figure 5 - GF_VEDO SL admitted angulation

The angulation of the controller must be between 45° and 120°, as shown in figure 5.

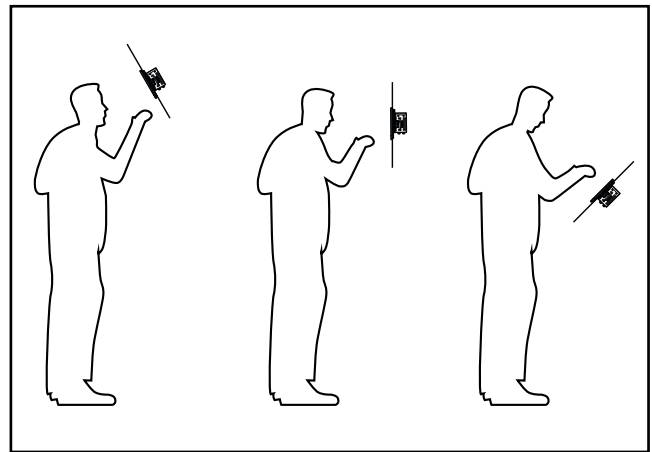


Figure 6 - Position and angulation

The angulation to choose also depends on the position of the controller compared to the operator, as shown in figure 6.

Fastening to the panel

Fit the die-cut rubber seal in the back of the Integrated Controller and Operator (figure 7).

The seal, supplied as standard, is essential to guarantee IP65-rated protection.

With GF VEDO SL 70CT and GF VEDO SL V70CT, fit the two metallic brackets supplied into the special housings on the short sides and fasten them in place with the screws (figure 7).

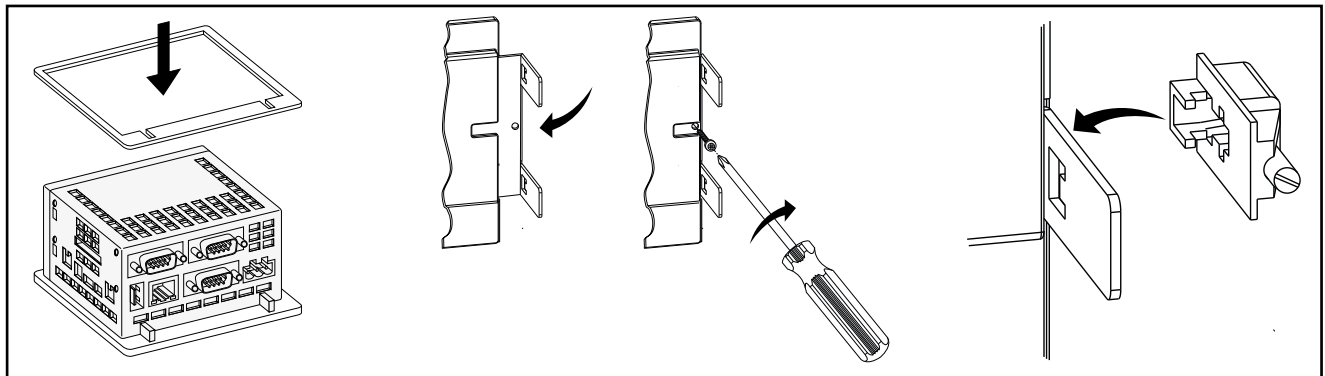


Figure 7 - Assembly of seal, metal bracket and terminal connection

Fit the Integrated Controller and Operator in the panel, connect the 4 terminals supplied to the device and tighten the screw until the device is fastened tightly to the panel.

There are 4 positions in which to connect the terminals, two per side.

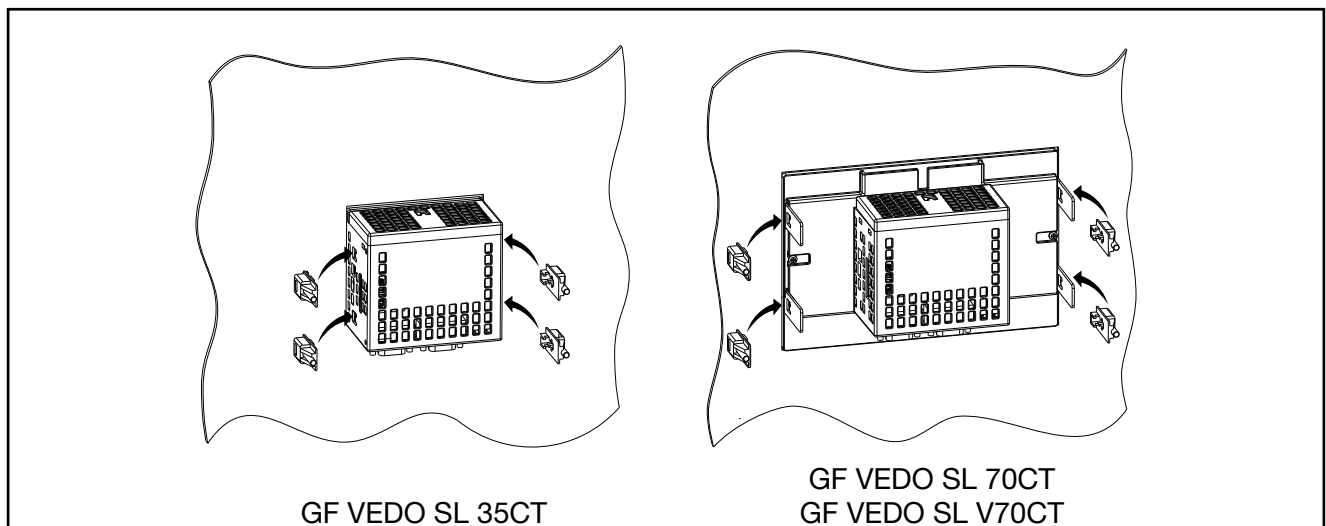


Figure 8 - Positions available for fastening terminals

Integrated Controller and Operator Panel Connections

Inputs, ports and signals

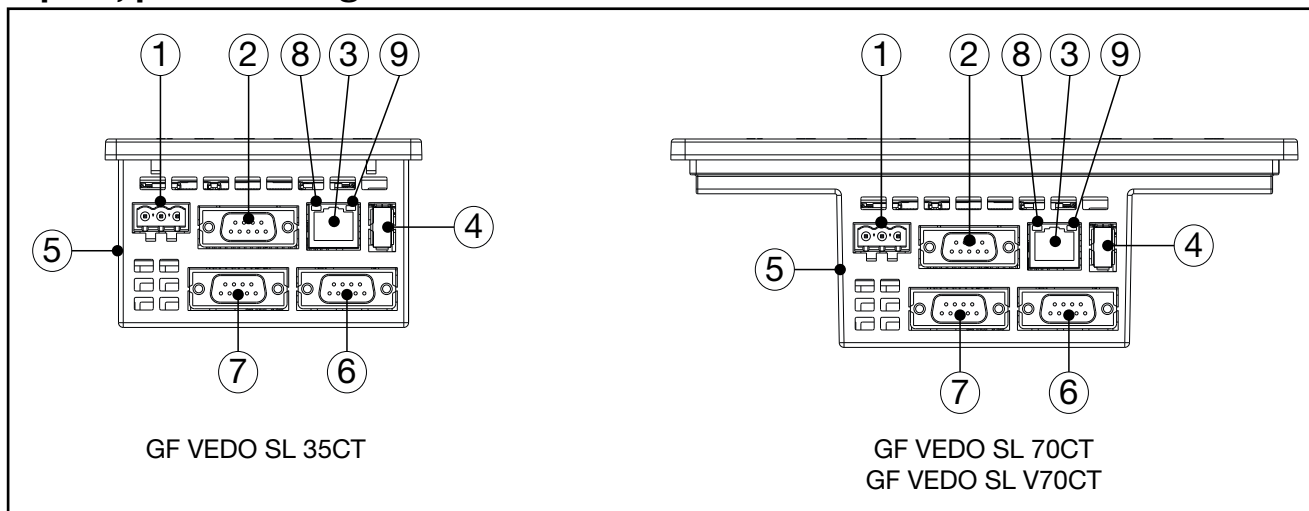


Figure 9 - GF_VEDO SL connector position

N.	Description	Connector / indicator	Note
1	Input power 24 Vdc \pm 25%	Pull-out polarised terminal block	
2	CAN Port	DB9 M (D-sub 9 pin male)	
3	Ethernet Port 10/100 Mbit/s	RJ45	
4	USB Port	USB Type A	optional
5	SD Card Slot		optional
6	RS232 Port	DB9 M (D-sub 9 pin male)	optional
7	Insulated RS485 Port	DB9 M (D-sub 9 pin male)	optional
8	Green "Link" LED	Permanently on signals that the Ethernet connection is active	
9	Yellow "Data" LED	Flashing signals that data is being transferred	A high-speed transfer could make the yellow LED appear permanently on

Power

The Integrated Controller and Operator Panel must be connected to a 24 Vdc power supply unit.

The same 24 Vdc power supply can feed several devices (controller and CAN-IO modules).

Make sure that the current issued by the power supply is higher than the total maximum current absorbed by all the devices connected.

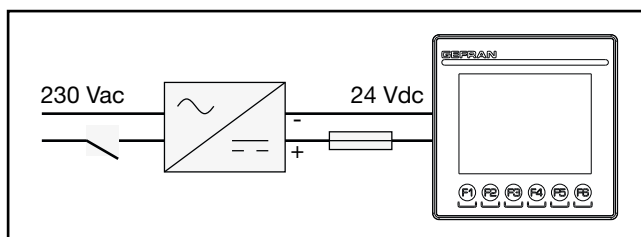


Figure 10 - GF_VEDO SL power

Considering that the device has no switch, it is necessary to install one before it, with a protective fuse.

The switch has to be positioned in the immediate vicinity of the device and be easy for the operator to reach.

For the 24 Vdc power supply, use a separate line from that used for electromechanical power devices such as relays, contactors, solenoids, etc.

If there are considerable changes in the mains voltage, use a voltage stabiliser.

Near to high frequency generators or arc welders, use adequate grid filters.

Connect the power cables to the power connector. Fit the cylindrical nucleus in ferrite, supplied with the product, as close as possible to the device to limit the susceptibility of the device to electromagnetic disturbance (figure 11).

The 24 Vdc power cables must follow a separate route from the power cables of the system or the machine.

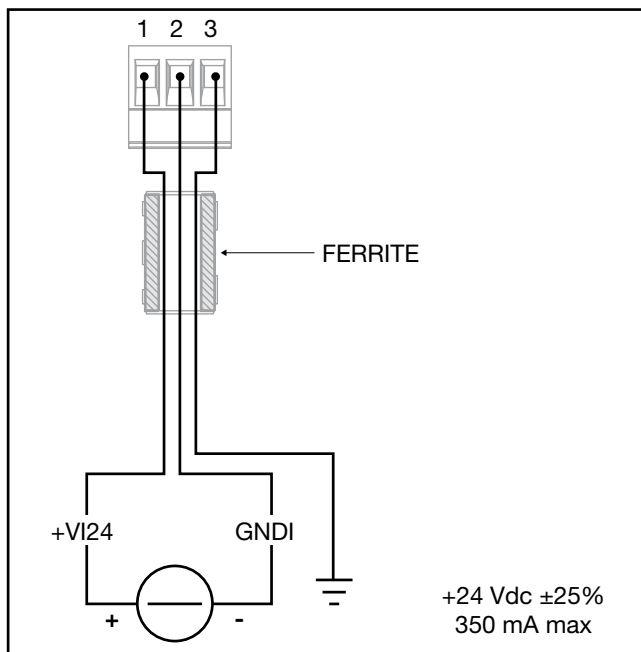


Figure 11 - GF_VEDO SL power connection



Attention: make sure that the earth connection is efficient. A non-existent or inefficient earth connection can make the operation of the device unstable, due to excessive environmental.

In particular, check that:

- the voltage between ground and earth is $< 1\text{ V}$;
- the ohm resistance is $< 6\ \Omega$.

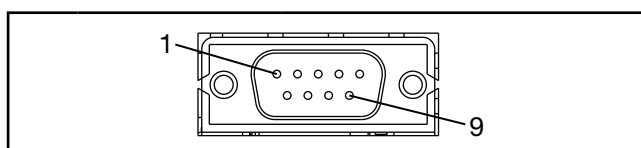
CAN

Connect the cable for the CAN field bus (CANopen protocol). The CAN bus connects the various CAN devices, such as the CAN-IO modules, to the Integrated Controller and Operator Panel.

Considering that the CAN port is opto-isolated, it is not necessary to disconnect the power to the device before connecting it.

For the wiring of the line, use an approved cable.

Fasten the cable connector to that of the controller with the appropriate screws.



Pin	Name	Description
1		
2	CAN_L	CAN-Low (CAN-)
3	GND	Ground (mass)
4		
5	EARTH	Earth
6		
7	CAN_H	CAN-High (CAN+)
8		
9		

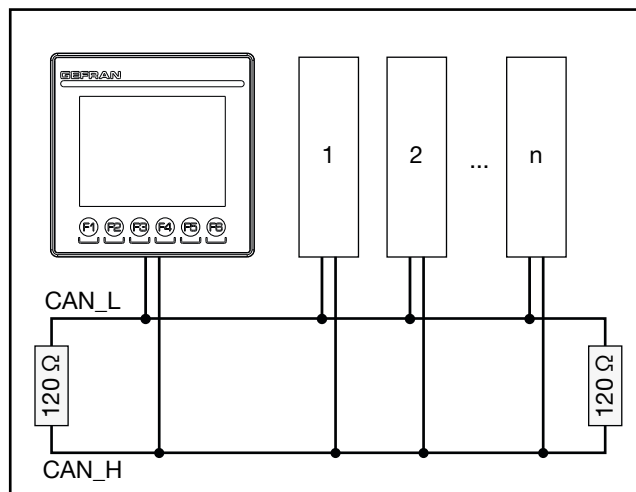


Figure 12 - CAN bus line termination



The line termination is not fitted in the controller. It is therefore necessary to fit two terminations (resistor $120\ \Omega$, $\frac{1}{4}\text{ W}$, 5%) at the ends of the CAN bus, as shown in figure 12.

Note: If the last device of the CAN bus is a CAN-IO module, it is possible to activate the termination in the module with the appropriate switches (see the CAN-IO documentation).

Ethernet

If necessary, connect the Ethernet cable to the Ethernet RJ45 port.

The Ethernet port allows connection of the Integrated Controller and Panel to a computer or to a company LAN network.

The connection cable to use (either straight or crossover) depends on the type of device that has to be connected. For example, to directly connect a PC it is necessary to use a crossover cable.

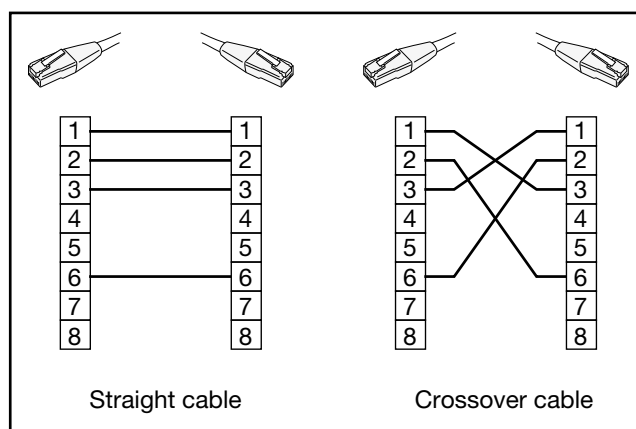


Figure 13 - straight and crossover Ethernet cables

For the connection, use a CAT6 UTP cable or superior. The maximum length of the Ethernet cable is 100 metres.

Do not run the Ethernet cable alongside the machine power cables, to avoid interference with data transmission.

The RJ45 socket has two LEDs. When the Ethernet connection is active, the green LED stays permanently lit; when data is being transmitted, the yellow LED flashes.

USB

The USB port is optional and is used to connect external devices compliant to the USB standard.

The connector is Type A and the port supports version USB 2.0, with speed up to 480 Mbit/s.

The port is able to issue a current of 500 mA at 5 Vdc to power USB devices.

The maximum length allowed for the USB cable is 5 metres.

Transfer cable

It is possible to directly access the USB port of the controller from the panel using the transfer cable (accessory to order separately).

To fit the socket of this cable, the panel thickness, in the position chosen, should not exceed 2 mm.

SD Card

The SD Card slot is optional and allows use of the SD Card mass memories to store data and applications.

The SD Card can be used and removed at will.

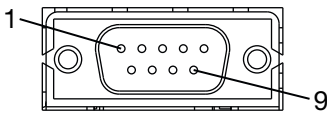
Before removing it, make sure that there are no writing operations in progress.

RS232

The RS232 port is optional. Considering that the RS232 port is not insulated, it is necessary to disconnect the power to the Integrated Controller and Operator Panel and to the device to be connected before connecting them.

The connection cable must be screened and not exceed a length of 5 metres.

Tighten the cable connector to that of the controller using the special screws.

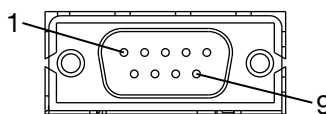
			
Pin	Name	Description	Signal Flow
1	DCD	Data Carrier Detect	Input
2	RxD	Received Data	Input
3	TxD	Transmitted Data	Output
4	DTR	Data Terminal Ready	Output
5	GND	Ground	Mass
6	DSR	Data Set Ready	Input
7	RTS	Request To Send	Output
8	CTS	Clear To Send	Input
9	RI	Ring Indicator	Input

RS485

The RS485 port is optional.

Considering that the RS485 is opto-isolated, it is not necessary to disconnect the power to the Integrated Controller and Operator Panel and to the device to be connected before connecting them.

Tighten the cable connector to that of the controller using the special screws.

		
Pin	Name	Description
1		
2	TX/RX+	Data +
3		
4	TX/RX-	Data -
5	GND	Ground
6		
7		
8		
9		

The RS485 connection can be used successfully over long distances and in environments characterised by considerable disturbance.

The maximum length of the cable depends on the transmission speed, as shown in figure 14.

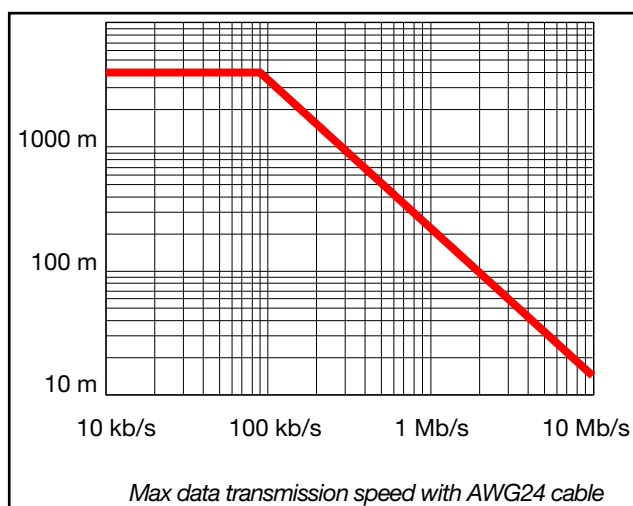


Figure 14 - RS485 max transmission speed

ENTRY INTO SERVICE

Set-up program

When no application program has been uploaded onto the Integrated Controller and Operator Panel, or when the dial is positioned on F, the following happens:

1. The Gefran logo appears on the screen.



2. The operating system is loaded (this takes about 1mi).
 3. The Main Menu of the set-up program appears.
- The set-up program allows configuration of the device and to obtain information on it.

The configurations to be carried out when using the controller for the first time are:

1. Regulation of the current date and time.
2. Calibration of the touchscreen display.
3. Uploading of the application program.

When uploading an application program onto the controller, the set-up program is no longer shown.

To access the set-up program again after uploading an application program onto the Integrated Controller and Operator Panel, proceed as follows:

1. Switch off the controller.
2. Shift the controller dial to position F (figure 15)

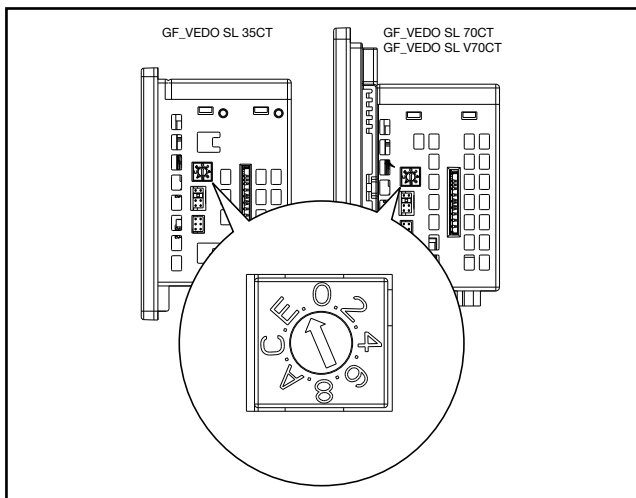
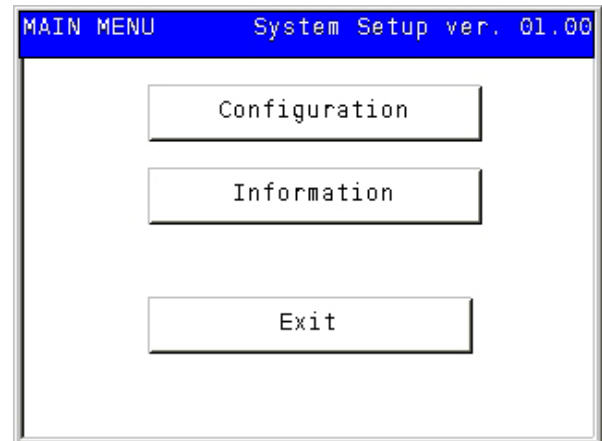


Figure 15 - GF_VEDO SL Dial

3. Switch the controller on again. After the initial start phase, the main menu of the set-up program appears.
4. Operate as for the set-up program and then switch off the controller.

5. Shift the controller dial to its previous position.
6. Switch the controller again. After the initial start phase, the application program screen appears.

Main Menu



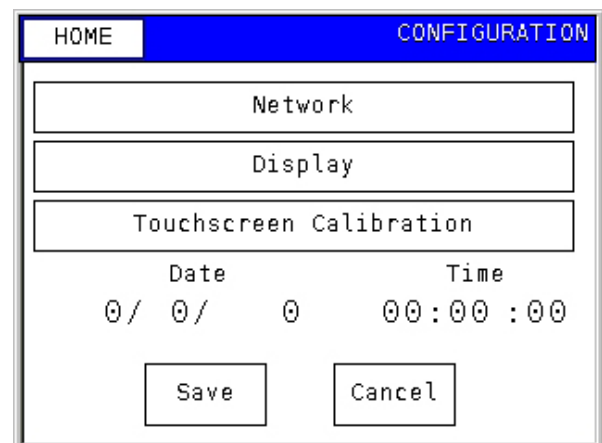
The version of the set-up program installed appears in the top right corner.

The **Configuration** button allows access to the device configuration procedures.

The **Information** button allows access to information on the firmware and communication protocols installed.

The **Exit** button allows a return to the application program, if installed.

Configuration



The **HOME** button in the top left corner allows a return to the *Main Menu*.

The **Network** button allows access to the device configuration procedures.

The **Display** button allows access to information on the firmware and communication protocols installed.

The **Touchscreen Calibration** button will allow future access to the procedure for the calibration of the touch screen without using the dial.

To regulate the date, proceed as follows:

1. Touch the year with a finger. The numeric keypad appears. Type in the year and press **Enter**. The changed year appears underlined.
2. Touch the month with a finger. The numeric keypad appears. Type in the month in the 2-figure format and press **Enter**. The changed month appears underlined.
3. Touch the day with a finger. The numeric keypad appears. Type in the day in the 2-figure format and press **Enter**. The changed day appears underlined.
4. Press **SAVE** to save the changes made. When the new date has been saved, the underlining disappears.

To regulate the time, proceed as follows:

1. Touch the hours with a finger. The numeric keypad appears. Type in the hour in the 24h format and press **Enter**. The changed hour appears underlined.
2. Touch the minutes with a finger. The numeric keypad appears. Type in the minutes in the 2-figure format and press **Enter**. The changed minutes appear underlined.
3. Touch the seconds with a finger. The numeric keypad appears. Type in the seconds in the 2-figure format and press **Enter**. The changed seconds appear underlined.
4. Press **Save** to save the changes made. When the new time has been saved, the underlining disappears.



Attention: the controller does not automatically update the time when the clocks go back/forward.

The **Save** button memorises the new time and date and the **Cancel** button cancels the changes and maintains the previous time and date.

Network

On this screen it is possible to know and set the IP (**IP Address**) and the **Subnet Mask** of the Integrated Controller and Operator Panel.

Selecting **Enable DHCP** the controller obtains the IP address from a DHCP server connected to the network, otherwise it uses the IP address saved by hand.

The **Save** button memorises the new configuration and the **Cancel** button cancels the changes and maintains the previous configuration parameters.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Configuration* screen.

Display

On this screen it is possible to regulate the brightness and the screensaver timeout.

To regulate the **Brightness** of the screen, use the - and + buttons.

The 100% value (set in the factory) is ideal for most situations.

To regulate the **Screen saver timeout** use the - and + buttons. 120 seconds (set in the factory) is ideal for most situations.

Setting 0 seconds, the screen never times out.

It is advisable to set the shortest possible timeout, compatibly with your needs.

To see the screen again, all you have to do is touch any button.

The **Save** button memorises the new configuration and the **Cancel** button cancels the changes and maintains the previous configuration parameters.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Configuration* screen.

Touchscreen calibration

To calibrate the touch screen, proceed as follows:

1. Switch off the device.
2. Position the dial on E.
3. Switch the device on again. The logo page is followed by the calibration screen. This screen is used to calibrate the response of the screen when it is touched with a finger.
4. Touch the 5 targets precisely with a plastic tip, following the order proposed on the screen
5. After touching the 5th target, the system automatically exits the calibration procedure and starts the set-up program or, if it exists, the application program.
6. Switch off the device.
7. Position the dial on 0.
8. Switch the device on again.

Information

HOME		INFORMATION	
CANopen			
Modbus TCP			
Modbus RTU			
System Message			
Bootloader	.....	0	0
Firmware	.....	0	0
FileSystem	.....	0	0
Runtime	.....	0	0

The **HOME** button in the top left corner allows a return to the *Main Menu*.

The **CANopen**, **Modbus TCP** and **Modbus RTU** buttons allow access to information relating to the various communication protocols.

The **System Message** button allows access to system information.

The screen directly shows the versions of Bootloader, Firmware, FileSystem and Runtime.

CANopen

HOME		BACK		CANopen	
Node <input type="text" value="0"/>					
Status					
Configured No					
Present (operational) No					
Net Status Boot up slave					
Miss counter 0					
Emergency 0 (Counter)					
Code	Register	Add. code			
000h	000h	0h	0h	0h	0h

This screen shows the node number of the Integrated Controller and Operator Panel for the CANopen protocol and information on the status of the CANopen protocol.

Emergency information defines the number of times that the node has shown the state of emergency.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Information* screen.

Modbus TCP

HOME		BACK		Modbus TCP	
Node <input type="text" value="0"/>					
Status					
Active No					
Configured No					
Present (operational) No					
Net Status Disconnected					
Miss counter 0					
IP Address					

This screen shows the **Node** number of the Integrated Controller and Operator Panel for the Modbus TCP protocol and information on the status of the Modbus TCP protocol.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Information* screen.

Modbus RTU

HOME		BACK		Modbus RTU	
Node <input type="text" value="0"/>					
Status					
Active No					
Configured No					
Present (operational) No					
Net Status Disconnected					
Miss counter 0					
Fisical number node 0					

This screen shows the **Node** number of the Integrated Controller and Operator Panel for the Modbus RTU protocol and information on the status of the Modbus TCP protocol.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Information* screen.

System Message / Fault

HOME		BACK		Fault	
Reset after watchdog signal	<input type="checkbox"/> FALSE				
Last Fault	<input type="text" value="None"/>				
Fault address	<input type="text" value="0"/>				
PLC Loaded	<input type="checkbox"/>	<input type="checkbox"/> FALSE			
HMI Loaded	<input type="checkbox"/>	<input type="checkbox"/> FALSE			

This screen shows useful information in the case of malfunctions.

Reset after watchdog signal indicates whether the controller restarts automatically after the program has been blocked.

Last Fault indicates when the last malfunction occurred.

Fault address indicates the address of the application program code which manifested the malfunction.

PLC Loaded shows and signals the correct upload of the PLC software.

HMI Loaded shows and signals the correct upload of the application program.

The **HOME** button in the top left corner allows a return to the *Main Menu* while the **BACK** button returns to the *Information* screen.

Uploading the application program

To upload the application program onto the Integrated Controller and Operator Panel, proceed as follows:

1. Connect the controller to a PC using a crossover Ethernet cable.
2. Open the Network screen of the set-up program, disable the DHCP and manually set an IP address, e.g.: 192.168.010.002.
3. Run the *GF Project LX* program on the PC.
4. Click the **Open code prj ...** button.
5. Select the required PLC program from the list that opens (the file extension is .PPJS) and click the **Open** button.
6. Select -> **Settings** from the **Communication** menu.
7. Select the GDB protocol in the **Device Link Manager Config** window that opens.
8. Click the **Properties** button. The **Gdb Config.** Window opens. Select the **TCP/IP** protocol from the **Port** dropdown menu and enter the **IP address** indicated at step 2 of the procedure in the IP address box.
9. Click the **OK** button and then press **OK** again.
10. Check the connection. Select -> **Connect** from the **Connection** menu. The PC connects to the controller. In the bottom right window the following words appear: **CONNECT**, in green, **NO CODE** in yellow. If **DIFFERENT CODE** appears, this means that there is already an application program, different from the one you are trying to upload, on the controller. If the word **CONNECT** does not appear, this means that communication related settings are incorrect. In particular, verify the IP address.

11. Upload the application onto the controller, selecting -> **Download Code** from the **Communication** menu. Click the **Yes** button in the warning message that opens. The transfer starts and is highlighted on a progress bar.
12. At the end of the transfer, a window opens and asks you to restart the system. Click **Yes**.
13. In the bottom left corner of the **Output** panel there is a list of the results of the actions performed; the message **SOURCE OK** appears in the window at the bottom.
14. Click the **Open GF Project LX** page button and wait for the page editor to open.
15. Open the page application, selecting the **OPEN** page menu.
16. Select the page required (the file extension is PAJX) from the list and click the **Open** button.
17. Select -> **Communication settings** from the **Project** menu.
18. Select the **GDB** protocol in the **Device Link Manager Config** window that opens.
19. Click the **Properties** button. The **Gdb Config.** Window opens. Select the **TCP/IP** protocol from the Port dropdown menu and enter the **IP address** indicated at step 2 of the procedure in the IP address box.
20. Click the **OK** button and then press **OK** again.
21. Transfer the program, selecting -> **Download Project** from the **Project** menu.
22. In the bottom left corner of the **Output** panel there is a list of the results of the actions performed; and the first page of the program uploaded appears on the screen of the Integrated Controller and Operator Panel.
23. Remove the Ethernet cable.

To upload a new program onto a controller that has already been programmed, follow the same procedure.

MAINTENANCE AND DIAGNOSTICS

Maintenance

Integrated Controller and Operator Panel

To clean the screen use a slightly damp soft cloth.
Do not use chemical or abrasive products.
Disconnect the power supply before cleaning the Controller.

Disposal



The Integrated Controller and Operator Panel and the CAN-IO module must be disposed of in compliance with the laws in force. Some of the components used in the devices may damage the environment unless disposed of properly.

Diagnostics

Integrated Controller and Operator Panel

See the *System Message* screen of the set-up program.

ORDERING CODES

Integrated Controller and Operator Panel

Create the codes to suit the device configuration required

GF_VEDO SL####LX0## ## ## ## ##

Model	
3.5" display	35CT
7" horizontal display	70CT
7" vertical display	V70CT

Basic memory	
FLASH 128 MB DRAM 64 MB FRAM 32 kB (1)	LX0

RS485 + RS232 Ports	
Absent	00
serial RS485+RS232+slot SD card	S1 1)

CAN Port	
Absent	00
CANopen	C1 3)

USB Port	
Absent	00
USB	U1

Keypad	
Absent	00
Present	K1

Lexan	
Gefran	G
Open Frame	0
Custom	C 2)

(1) SD and FRAM Available from January 2013

(2) Ask for availability

(3) Mandatory port for use with remote IO

Code examples

GF_VEDO SL 70CT LX0 S1 C1 U1 00 G 7" display; CANopen, RS485, RS232 and USB ports; lexan Gefran; no keypad

GF_VEDO SL 35CT LX0 00 C1 U1 K1 C 3,5" display; CANopen and USB ports; lexan customized; 6-key keypad

Programming tool

GF_PROJECT LX

Development software that allows the writing of the application program for PLC with IEC1131 languages. Also allows the construction, in graphic mode, of the various pages of the user interface necessary to the application developed.

Via GF_PROJECT LX it is possible to connect to the device that will host the application to debug the program and upload the upgrades.

System requirements

	Minimum	Recommended
Operating system	Windows XP SP2 or Windows Vista or Windows 7 (32 bit)	Windows 7 (64 bit)
Processor	Intel Pentium 1 GHz	Intel Core i5 2,5 Ghz or superior
RAM	2 GB	4 GB or superior
Free space on Hard Disk	2 GB	4 GB or superior
Graphic resolution	XGA (1024 x 768 pixel)	SXGA (1280 x 1024 pixel) or superior
Browser	Microsoft Internet Explorer 8.0	Microsoft Internet Explorer 9.0 or superior
Ethernet port	1 RJ45	
DVD player	Yes	
USB port		1 USB 2.0

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